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1986 performances mixed for Top 100

Robert A. Lincicome
Editor-in-Chief

BARRINGTON, IL—Net incomes and earnings for common stock of the nation's Top 100 electric utility companies improved in 1986 on mixed individual performances. Collective kilowatthour sales, average residential use and numbers of customers eeked out small gains, but revenues declined. Overall, it was a mixed year for the industry.

Despite improving on 1985 performances, the results posted by the top 100 electric utilities in 1986 generally did not equal those of 1984, which was a banner year for the industry...

This is the overall picture painted by *EL&P's* 22nd Annual Top 100 Electric Utilities Survey, conducted earlier this year.

Income up on reduced revenues

Net incomes, which fell substantially in 1985, rebounded in 1986 to $17.3-billion. This represents a gain of 11.8 percent from the 1985 total of $15.5-billion.

And earnings per share of common stock, which were $2.64 in 1985, increased 6.1 percent, to $2.8 per share in 1986. This figure, which represents the average earnings per share for the 99 companies reporting financial data, reflects restated earnings for 1985 and not just 1985 data as reported in last year's Top 100 survey.

The 22nd Annual Top 100 Electric Utilities report begins on page 13

The fact that net incomes rose solidly is especially noteworthy in light of the decrease in revenues. Revenues posted by the Top 100 slid 0.53 percent to $149.3 billion from $150.1 billion a year earlier. The revenue decline reflects rate reductions and lower fuel adjustment collections since kWh sales were actually up slightly in 1986.

Income increases resulted from reduced fuel costs, lower interest payments as older high interest-bearing bonds have been refunded and as construction costs have been slashed, and from continuing cost-control efforts by utility managements.

Customers, kWh sales grew

Customer growth for the Top 100 electric utilities was 1.96 percent, which coupled with kWh sales growth of just 1.14 percent and average residential usage growth of 1.12 percent, illustrates the seriousness of reductions in industrial use of electricity.

Customers increased from 76.4-million in 1985 to 77.9-million last year. This increase was less than reported a year ago, when customer growth was 2.6 percent.

Total kWh sales, for all purposes, were 2.0-trillion kwh, marginally ahead of the 1.98-trillion kWh reported a year ago.

Average residential use also was ahead marginally, from 8538 kWh in 1985 to 8634 kWh last year.

Legislators call for Roberts to resign because of document leak to utility

WASHINGTON—Sen. John Glenn (D.OH) and several congressmen are calling for the resignation of Commissioner Thomas Roberts of the Nuclear Regulatory Commission.

Roberts, a two-term commissioner, is alleged to have had improper contact with a Louisiana electric utility. In addition, his testimony given before a recent Senate Governmental Affairs hearing has been questioned by the lawmakers.

"This testimony concerned Commissioner Roberts' inadequate and inappropriate handling of leaked NRC documents from his office to a licensee regulated by the utility," said Glenn in a prepared statement. "After reviewing the entire record of this matter, I am convinced that the NRC and the public it serves cannot afford to retain Commissioner Roberts, who clearly demonstrated poor judgment and self-serving behavior."

The allegations center around NRC documents relating to quality assurance problems at Louisiana Power & Light Company's Waterford plant that were leaked in April 1983 to the utility from Roberts' office.

Glenn stated that when the leak was accidentally discovered in 1985, Roberts conducted an internal investigation into the leak instead of referring the matter to the NRC Office of Inspector and Audit (OIA).

Roberts admitted at the April hearing that he had then asked for all NRC copies of the document, and had them destroyed.

"After careful reflection of the entire record," said Glenn, "I am now convinced that Mr. Roberts' deliberate destruction of the incriminating evidence requires his resignation. Mr. Roberts' actions and explanations call into question his objectivity and leadership abilities."

At press time, Commissioner Roberts announced he was taking a brief leave of absence from the NRC to prepare testimony before the Senate Environment and Public Works Subcommittee on Nuclear Regulation, which is investigating the allegations made against Roberts. Five separate bodies are conducting investigations into the allegations. In addition to the Senate subcommittee, they include the Washington U.S. Attorney, the House Interior Committee, the Senate Governmental Affairs Committee, and an NRC internal investigation that is being turned over to an outside counsel.

Glenn sent the matter on to the U.S. Justice Deparment, which announced it was assigning the case to the U.S. District Attorney in Washington.

After the Justice Dept. became involved in the matter, Roberts announced that he had found copies of the missing documents.

The Justice Dept. is continuing its investigation of the matter, having taken over the investigation from the NRC's OIA.

Roberts, in a statement, said he was "truly shocked" by Glenn's request. "I

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Superconductivity R&D moves on

Advances in superconductivity research are proceeding at a quickened pace. Here, a coil of superconducting material at AT&T Bell Laboratories registers zero resistivity in a beaker of liquid nitrogen. Recently at Bell and other labs around the world, superconductors were discovered that only need to be cooled to about 95 degrees Kelvin. Previously, superconductors needed to be cooled to approximately 23 degrees Kelvin (-419 degrees Fahrenheit). At AT&T, researchers are exploring whether a new theory of superconductivity is needed. Also, one AT&T scientist reports that his team has devised ways to process one of the new materials into thin tapes and toroids that don't lose their superconductivity above 90 degrees K. Another researcher says Bell Labs has developed superconducting wires that can easily be formed into coils.

Power generating costs from central stations rising, says UDI

WASHINGTON—Annual electricity generating costs for central station power plants in the U.S. are on the rise, according to a new report from the Utility Data Institute.

Between 1981 and 1985, the study shows that nuclear plants experienced the greatest percentage increase in operating costs—56 percent per net MWhr produced. This is up from $11.95 per net MWhr in 1981 to $18.67 per net MWhr in 1985. The analysis was based on 45 nuclear plants that operated all five years. Newer units entering service since 1981 are not included in the report.

Coal plants (295 sampled) showed a 10 percent per net MWhr increase, from $20.60 per net MWhr in 1981 to $22.60 per net MWhr in 1985.

Gas-fired power plant expenses rose 24 percent (from $34.07 in 1981 to $42.33 in 1985), while oil-fired plant expenses dropped from $55.08 in 1981 to $52.82 in 1985.

The UDI report, *U.S. Steam Electric Plants: Five Year Production Costs 1981-1985*, analyzes five years of operating, maintenance and fuel expenses for 500 steam-electric plants located throughout the nation.

Based on variable operating, maintenance and fuel expenses reported annually by electric utilities to agencies of the Federal government, the report provides a detailed accounting for each of the sampled plants for each year of data.

Then, said UDI, an "average plant cost" based on all five years is calculated for each plant.

Based on the five year average indicator, UDI ranked the top 100 plants

Continued on page 3

UK to build its first pressurized water reactor plant

LONDON, UK—The United Kingdom will build its first pressurized water reactor power plant at Sizewell, near Suffolk, on the southeast coast. The decision came after a two-year inquiry and another two years of study and analysis of some 55 tons of testimony and documentation leading to the final report approved by Parliament.

More than 90 percent of the equipment will be manufactured and fabricated in the U.K. Westinghouse will design and erect the primary reactor coolant system, manufacture some components and will transfer extensive technology for the 1150-MW plant. Westinghouse previously had been awarded contracts from the Central Electricity Generating Board for the Sizewell plant, contingent upon a favorable outcome to the public inquiry. CEGB is the British national electric utility.

Westinghouse's technology for the design of the PWR system will be transferred through its licensee in the U.K., the National Nuclear Corp.

More to come

Lord Walter Marshall, chairman of the CEGB, said the utility will apply for planning consent for a second PWR to go at the Hinkley power plant site in Somerset. The application will be made sometime this year, he said. A PWR at Hinkley would be the third nuclear unit at the site. The other two are gas-cooled reactors.

Marshall explained that the CEGB would like to build up to five PWRs before the end of the century.

Significant decision

Ted Stern, Westinghouse executive vice president for energy systems, called the British decision "significant" to the nuclear industry. "No decision on a new power plant in my memory has been made with so much care and following such a thorough investigation, he added. "The conclusion that the Westinghouse pressurized reactor is safe and the most economical source of electricity for the United Kingdom was one which we had anticipated, given the thoroughness of the inquiry, he concluded."

AP&L CEO Maulden launches new environmental effort

Jerry L. Maulden, Arkansas Power & Light Co. president and CEO, grabs a rake to help members of a local Future Farmers of America chapter plant a wildlife food and cover plot on an AP&L 500,000 volt transmission line right-of-way through a portion of Pinnacle Mountain State Park near Little Rock, Ark. AP&L and the Arkansas Wildlife Federation are co-sponsoring the "Rights-of-way for Wildlife" program, which has been designed to encourage the planting of wildlife food on plots situated on more than 4,800 miles of transmission rights-of-way.

Control design service offered

SCHENACTADY, NY—A new design service for coordinating controls within a large-scale power system has been announced by General Electric.

The service will address the need for coordinating numerous controls within an interconnected power system to avoid degrading system security. As systems are expanded or upgraded, the number of significant controllable elements increases, as does the potential for adverse control interaction. While individual subsystems are designed with internal controls and may represent the products of a single manufacturer, overall system security is dependent on a higher-level control function that integrates a variety of components from a number of different suppliers.

According to GE, the new service will draw on the company's systems expertise and knowledge of controlled devices to offer utilities analytical studies, field testing services and specification of high-level control equipment.

GE says its capabilities to perform studies range from analysis of selected applications to extensive simulations of large-scale systems.

On the application level, the company says it can determine operating parameters and limitations imposed on control responses, including those caused by subsynchronous interactions with transmission and generating equipment.

Field tests conducted in the early stages of system design can verify analytical models. If conducted in the latter stages of implementation, GE says, field tests can be used to verify critical performance aspects.

Power generating costs from central stations rising . . . from page 1

on the basis of efficiency. In terms of economic efficiency, nuclear plants continued to be the most cost-effective. UDI points out that 16 of the top 20 plants were nuclear (See table.) The other four members of the top 20 include two gas-fired and two coal-fired plants, all located in Texas.

Top five

The top five most cost-effective plants in descending order are West Texas Utilities' Rio Pecos, Gulf States Utilities' Sabine, Northern States Power Company's Prairie Island, Virginia Electric & Power Company's North Anna, Florida Power & Light Company's Turkey Point 3 & 4, and Commonwealth Edison Company's Zion station.

UDI said the top 100 most efficient plants included 27 nuclear, 69 coal-fired and four gas-fired plants.

Total generation

Plants were also ranked in terms of total generation. Three coal-fired plants exceeded 90 million net megawatthours during the five year period. They included Georgia Power Company's Bowen, Detroit Edison's Monroe, and Houston Lighting & Power Company's W.A. Parish. Duke Power Company's Oconee nuclear plant ranked fourth, with more than 78 million net MWh generated.

The top 100 plants on the basis of total generation include 69 coal-fired, 21 nuclear, seven gas-fired and three oil-fired plants.

UDI is a not-for-profit clearinghouse for utility data and information. The new 610-page study is available from UDI at a cost of $395 per copy ($320 for electric utilities).

Table 1
Top 15 U.S. Steam Electric Plants Ranked by Total Generation (Net MWHrs) 1981-1985

Rank	1981-1985 Total Generation (Net MWhrs)	Plant Name	Fuel	Gross Capacity (MW)	Operator	1st Unit Year	Last Unit Year	NERC Region	State
1	92639882	Bowen	Coal	3499	Georgia Power Co.	1971	1975	SERC	GA
2	92156276	Monroe (MI)	Coal	3280	Detroit Edison Co.	1971	1974	ECAR	MI
3	91788221	WA Parish	Coal	3953	Houston Lighting & Power	1958	1982	ERCOT	TX
4	78240197	Oconee	Ur	2667	Duke Power Co.	1973	1974	SERC	SC
5	74387878	Amos	Coal	2933	Appalachian Power Co.	1971	1973	ECAR	WV
6	73086773	Gibson	Coal	3340	Public Service Indiana	1975	1982	ECAR	IN
7	69195472	Roxboro	Coal	2558	Carolina Power & Light Co.	1966	1980	SERC	NC
8	68631146	Browns Ferry	Ur	3456	Tennessee Valley Auth.	1974	1977	SERC	AL
9	66963627	JM Stuart	Coal	2441	Dayton Power & Light Co.	1970	1974	ECAR	OH
10	66389558	Martin Lake	Coal	2380	Texas Utilities Elec. Co.	1977	1979	ERCOT	TX
11	64298516	Belews Creek	Coal	2160	Duke Power Co.	1974	1975	SERC	NC
12	63018854	Four Corners	Coal	2271	Arizona Public Service Co.	1963	1970	WSCC	NM
13	61447891	Monticello (TX)	Coal	1980	Texas Utilities Elec. Co.	1974	1978	ERCOT	TX
14	61376510	Bruce Mansfield	Coal	2805	Pennsylvania Power Co.	1976	1980	ECAR	PA
15	59226801	Labadie	Coal	2412	Union Electric Co.	1970	1973	MAIN	MO

Table 2
Top 15 U.S. Steam Electric Plants Ranked by Five-Year Average Cost Per Net Megawatt Hour

Rank	5-Yr. Avg. ($/Net MWhr)	Plant Name	Fuel	Gross Capacity (MW)	1981-1985 Generation (Net MWHrs)	Operator	1st Unit Year	Last Unit Year	NERC Region	State
1	4.11	Rio Pecos	Gas	142	5004672	West Texas Utilities Co	1959	1969	ERCOT	TX
2	8.61	Sabine	Gas	2051	49342477	Gulf States Utilities Co.	1962	1979	SPP	TX
3	9.86	Prairie Island	Ur	1186	37661266	Northern States Power Co.	1973	1974	MAPP	MN
4	10.04	North Anna	Ur	1959	48963148	Virginia Elec. & Power Co.	1978	1980	SERC	VA
5	10.52	Turkey Point 3&4	Ur	1520	36741544	Florida Power & Light Co.	1972	1973	SERC	FL
6	10.63	Zion	Ur	2196	53092931	Commonwealth Edison Co.	1973	1974	MAIN	IL
7	10.83	Big Brown	Coal	1187	35999939	Texas Utilities Elec. Co.	1971	1972	ERCOT	TX
8	11.17	Calvert Cliffs	Ur	1828	55121095	Baltimore Gas & Elec. Co	1975	1977	MAAC	MD
9	11.84	Quad Cities	Ur	1657	45699316	Commonwealth Edison Co.	1973	1973	MAIN	IL
10	11.89	Oconee	Ur	2667	78240197	Duke Power Co.	1973	1974	SERC	SC
11	11.83	Surry	Ur	1695	44340599	Virginia Elec. & Power Co.	1972	1973	SERC	VA
12	11.93	DC Cook	Ur	2285	58528109	Indiana & Mich. Elec. Co.	1975	1978	ECAR	MI
13	12.18	Maine Yankee	Ur	864	25954951	Maine Yankee Atomic Power	1972	1972	NPCC	ME
14	12.27	Sequoyah	Ur	2441	50606546	Tennessee Valley Auth.	1981	1982	SERC	TN
15	12.30	Dresden	Ur	1657	39128231	Commonwealth Edison Co.	1970	1971	MAIN	IL

(Source: Utility Data Institute, Inc.)

Editorial

Cogen, open transmission and deregulation go together

Structural changes in the electric power industry have only begun. As a result of the Public Utility Regulatory Act of 1978 (PURPA) and the continuing trend toward greater deregulation, the time is fast approaching when electric utility companies will have to decide whether they will earn the right to serve because they offer the best source of reliable, economic energy or whether they will retreat behind the bastion of regulatory protection to weather the threat.

The recent Federal Energy Regulatory Commission hearings on PURPA, the last of four, provided a broad range of views on standards for qualifying cogeneration and small power producer facilities, pricing of power from those facilities, and their dependence on access to utility transmission. While most of the testimony tended to support proprietary interests, we were impressed by the presentation of Virginia Power's chairman, William W. Berry, who combined non-utility power production, transmission access and open competition into a single set of recommendations.

Berry's proposals might serve as a basic blueprint for building the energy company of tomorrow...a utility working and thriving in an open energy market. He proposed a free market for new electric generation that would award capacity payments to only the most efficient projects so that incremental capacity always would be obtained at the least cost. His plan would call for utilities to develop their own estimates of supply and demand and a schedule of when new capacity would be needed. Prospective non-utility generators would bid for whatever portion of added capacity they desire on the basis of capacity price and incremental operating costs and the bids would be evaluated according to a specified set of criteria.

He proposed that potential generators be guaranteed access to transmission so they could reach sufficient potential buyers to create workable competition and "eliminate utility monopsony" (where the services of a number of sellers is sought by only one buyer). For utilities to obtain their capacity at free market prices, he said, they must volunteer to provide transmission services so that suppliers within their control area can also bid on the capacity of other utilities. "With competition permitted by the availability of transmission services to non-utility generators, market pricing would be efficient and fair to generators, to the utilities and to the public," he concluded.

Berry's program reflects no siege mentality, but rather one that seeks open, free competition. It merits the thought, and support, of the whole industry.

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Increased electric utility R&D can help lower power prices

WASHINGTON—More investment in national electric utility research and development programs will help to reduce future electricity costs, says Dr. Chauncey Starr.

The Electric Power Research Institute President Emeritus said that electrification, technical progress, and productivity growth are interwoven. Starr stated that low cost electricity would be an important stimulant to global economic growth.

At the recent Energy Technology Conference here, he said the U.S. electric utility industry has developed a centralized R&D program to reduce power costs, and to meet the new challenges of environmental and productivity goals.

Starr pointed out that the real price of electricity dropped by a factor of approximately five from 1930 to 1979. However, in the last 15 years, electricity prices almost doubled and now appear stable.

Major accomplishments

The accompanying table shows a few of the major technical accomplishments and utility performance changes during the last 55 years. Starr explained that the major technical improvement was the increase in thermal efficiency.

In the 1970s prices began to rise. Starr said the oil price shocks of 1973 and 1979; a decline in plant thermal efficiency; high real interest rates; and, increasing regulatory delays all helped to aggravate the situation. He told the conference attendees that real capital costs for central station power plants between 1960 and 1980 rose by a factor of four.

EPRI's President Emeritus said the industry's near-term R&D program focuses on modification and life extension of existing equipment. Intermediate and long-term objectives include substantially reducing the cost of supplying electricity, mitigating the constraints associated with resource and environmental problems, and developing new uses of electricity to help increase the productivity of American industry.

R&D focus areas

Eight broad R&D areas were identified by Starr. They include: fuel flexibility, capital cost, reliability and availability, system efficiency, load management, environmental protection, energy storage, and end use productive efficiency.

EPRI recently launched the Benefits Assessment Program. Starr explained that a representative group of 24 utilities were asked to estimate the continuous annual savings resulting from their application of EPRI-developed technologies.

In 1985 the annual savings for just these 24 utilities using EPRI products was estimated to be $392 million compared with the EPRI annual funding of $334 million.

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HISTORICAL TECHNICAL ACCOMPLISHMENTS IN ELECTRICITY SUPPLY

	U.S. Electricity Price (¢/kWh sold in 1984$)			Technical Accomplishments Between 1929 and 1970	Utility Performance Changes Between 1970 and 1984
	1929	1970	1984		
Fuel	5.3	0.9	1.9	• System heat rate reduced from 20,550 Btu/kWh to 10,510 Btu/kWh through equipment improvements • Coal cost reduced from $45/ton to $17/ton (1984 $) through scale economy in coal production	• System heat rate increased to 10,540 Btu/kWh due to environmental control • Coal cost increased to $35/ton (1984 $) due to general energy price increase
Generation	5.6	1.4	2.2	• New kW cost reduced by a factor of 2.5 through economies of scale • System capacity utilization increased from 35% to 51% through availability improvements and system interconnection	• New kW cost doubled due to environmental control and construction delays • System capacity utilization decreased to 41% due to load growth slowdown
Delivery	6.9	1.7	2.1	• New kVA cost reduced by a factor of 2.5 through voltage increase and economies of scale	• New kVA cost stabilized and system utilization decreased due to load growth slowdown
System	17.8	4.0	6.2	• System loss reduced from 18% to 9%	• System loss reduced to 7%

Sources: Electricity prices, fuel and technical data from EEI Statistical Yearbooks, 1925-1984; generation and delivery components based on income statements of investor-owned utilities.

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Electric rates drop sharply, according to new survey

NEW YORK—Industrial and commercial electric rates charged by the 24 largest U.S. electric utilities have fallen by twice the national rate of inflation. A survey by National Utility Service, Inc., indicates that these utilities' rates have decreased by 4.3 percent while inflation increased at a 2.1 percent rate.

U.S. Electric Rates 1987 vs. 1986

Company	1987 rate ¢/kWh	1986 rate ¢/kWh
American Electric Power	4.77	4.71
Carolina Power & Light	5.39	5.60
Central & South West	4.25	4.51
Commonwealth Edison	6.93	7.04
Consolidated Edison	10.22	11.34
Consumers Power	6.06	6.06
Detroit Edison	6.76	7.01
Duke Power	5.36	5.10
Florida Power & Light	5.47	6.22
General Pub. Utils.	7.06	8.16
Georgia Power	5.01	5.08
Houston Ltg. & Pwr.	4.77	5.10
Long Island Ltg.	9.58	9.93
Louisiana P&L	5.26	5.13
Niagara Mohawk Pwr.	6.71	6.30
Ohio Edison	6.35	6.27
Pacific Gas & Electric	7.22	9.27
Pennsylvania Pwr & Lt.	6.29	6.45
Philadelphia Electric	7.22	7.38
Public Service E&G	7.10	8.29
Southern Cal. Edison	8,79	8.51
Texas Utilities	4.24	4.54
Virginia Power	4.36	4.47
Union Electric	5.72	5.15

(Average decrease — 4.3 Percent)

Average rate charged

The average rate charged industrial and commercial customers fell to 6.29 cents per kWh in the period from April 1986 to April 1987. The April 1986 level was 6.59 cents per kWh.

Marvin Lauterbach, executive vice president of the company, said that most reductions have resulted from a restructuring of tariffs and the decrease in generating fuel costs. "Some customers have been fortunate enough to enjoy reductions of up to 22 percent as a result," he added. "The dramatic fall in oil prices, which took place last year, is still affecting the cost of electricity worldwide. The full impact of the reduced oil price is now being felt by electricity consumers, and it is likely that price movements over the next 12 months will generally follow that of oil."

Worldwide price stability

The NUS survey of international electricity costs shows that prices have either fallen or remained stable in most major industrial nations. Belgium, Canada, France, Italy, Netherlands, Sweden, the United Kingdom and the USA enjoyed price declines, while Australia and West German prices remained stable. Future price rises, according to NUS, should be in line with, or below, rates of domestic inflation.

Fifth most expensive

The U.S. remained the fifth most expensive nation for electricity, behind West Germany, Eire, Belgium and Italy.

The survey uses data drawn from prices paid by NUS clients at more than 750,000 business locations worldwide.

EPRI previews video

CHARLOTTE, NC—The EPRI Maintenance Equipment Application Center has produced an 11-minute preview videotape that outlines the organization's three-part training videotape, "Pressure Boundary Bolting Problems". As described in the preview tape, the three parts of the main tape are: Part I—The Basics; Part II—Engineering Considerations; and Part III—The Mechanic and Bolting. Requests for the preview tape may be sent to: Susan Evans, EPRI Maintenance Equipment Application Center, P.O. Box 217097, Charlotte, NC 28221.

Document leak . . .

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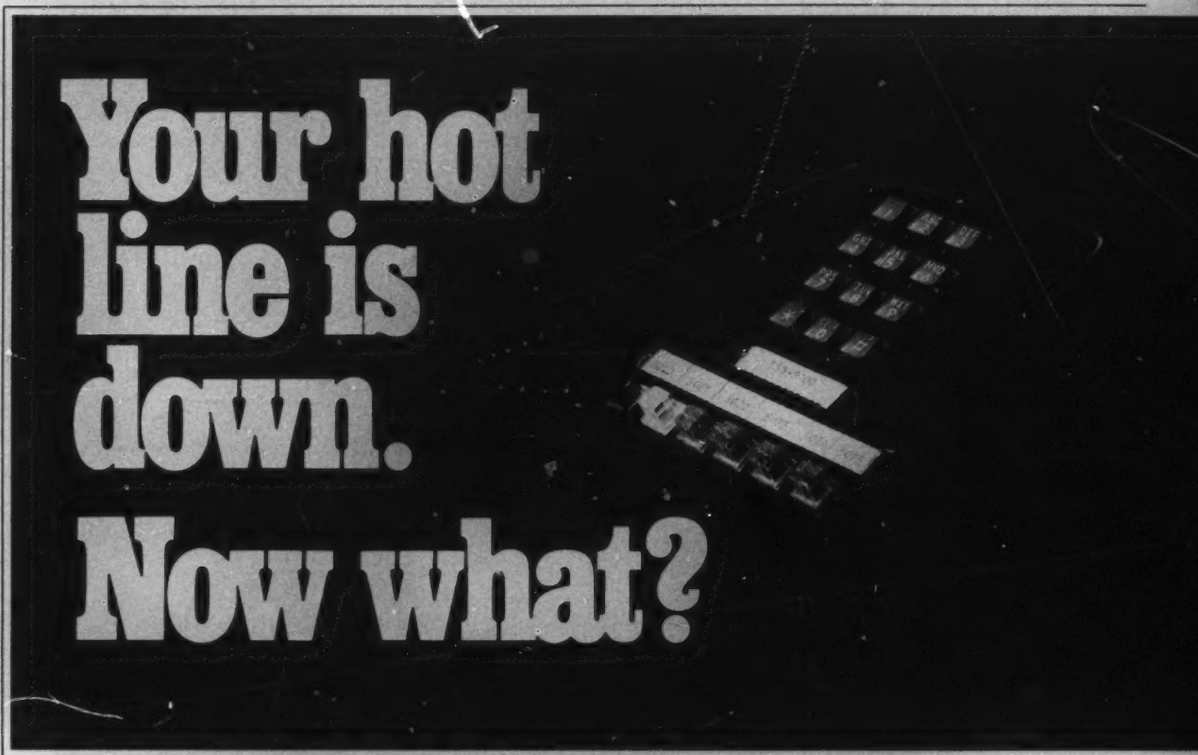
have done no wrong, and I have no intention of resigning," he said. "I welcome a review of these matters by the Department of Justice."

Five congressmen also have called for Robert's resignation, and asked that a special prosecutor be appointed to examine the NRC's integrity. The congressmen were John Dingell (D.MI), Philip Sharp (D.IN), Edward Markey (D.MA), George Miller (D.CA), and Sam Gejdenson (D.CT).

NRC Chairman Lando W. Zech said in a statement that the commission is moving "aggressively" to probe the allegations against Roberts and the NRC's investigative and regulatory processes.

Zech stated that "while we are prejudging no person and no component of this agency, we want to make clear that we will take whatever corrective action may be required to put our house in order."

He said the commission has initiated reviews of current policies and procedures for handling allegations involving commissioners and their offices; of the effectiveness of the NRC Investigation Referral Board; and of recommendations from the Director of the Office of Investigations for strengthening that office's functions.



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TMI 1 operates at 100 percent power, hits record

MIDDLETOWN, PA—Three Mile Island Unit 1 has been operating at 100 percent power and generating output has reached 887 MW, the highest output in the plant's history.

Before shutting down for refueling last October, the plant was operating at 100 percent power, with peak generation of 842 MW.

Unit 1's increased output is the result of modifications and maintenance done during the extended refueling and maintenance outage that ended in March. These modifications increased the efficiency of the plant's turbine-generator. These enhancements included modifying the manner in which steam is injected into the turbine, replacing turbine blading and adding insulation to the turbine to reduce heat loss.

However, when unit 1 was returned to service after the outage, it was unable to reach its former maximum production because of mineral deposits in the plant's two steam generators. The deposits interfered with the production of the steam produced to drive the turbine-generator.

A planned shutdown and maintenance effort to redistribute the deposits in early May apparently was successful. The plant, which had been limited to 84 percent power before the planned shutdown, reached 90 percent before a second, unplanned shutdown occurred. That shutdown was caused by an operator who used a wrong switch that initiated the unplanned shutdown. The switching procedure is now under review.

The unit was restarted about four hours later and returned to the regional grid later the same day. It has been operating at 100 percent power since then.

Foreign nuclear capacity up 8% in '86

WASHINGTON—Nuclear generating capacity outside the U.S. rose approximately eight percent last year, according to recent survey results from the Atomic Industrial Forum.

Generating capacity abroad increased to almost 180,000 MW at 285 reactors. AIF said that together with the U.S. nuclear program, nuclear energy accounted for more than 15 percent of the world's electricity supply last year.

Survey results show that in 1986 there were 131 foreign reactors under construction, representing 110,293 MW. (See table.)

France, Japan, Argentina and West Germany actively pressed the export of their nuclear technology. For example, AIF said that Argentina offered Algeria a pressurized heavy water reactor developed from a West German design. The industry group noted that France, West Germany and Japan are aggressively competing to sell reactors and other services to new and expanding foreign nuclear programs.

China ordered two Light Water Reactors last year from Framatome. AIF said the Japanese are in the process of ordering two advanced LWRs, which they have been developing with U.S. manufacturers.

With the addition of Bangladesh and Morocco, there are now 41 countries with firm nuclear electricity programs. However, AIF said several mature programs have been slightly trimmed.

Chart totals for 1985 and 1986 do not include six countries with less-firm programs. MWe figures are not included for "planned" reactors with no size assigned.

	1986 Net MWe	Reactors
Operable	179,978	285
Under Construction	110,293	131
On Order	8,820	9
Planned	148,500	165
Totals	447,591	590

	1985 (revised) Net MWe	Reactors
Operable	166,804	272
Under Construction	111,397	134
On Order	8,820	9
Planned	165,509	178
Totals	452,530	593

(Source: "International Reactor Survey", Atomic Industrial Forum)

R&D can help . . .

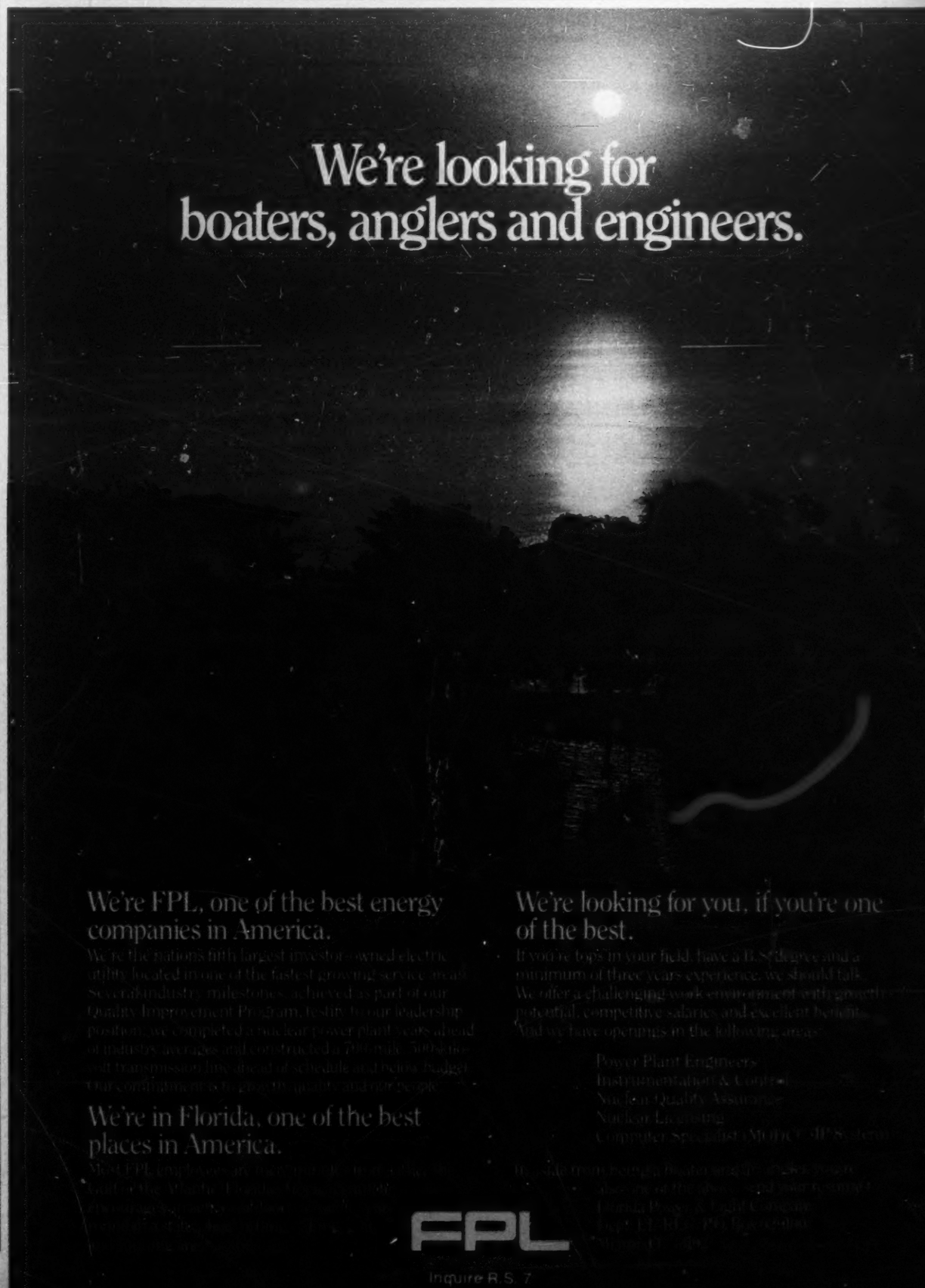
from page 4

Furthermore, said Starr, "these cost estimates do not include benefits resulting from applications to additional utilities nor a broad range of intangible R&D contributions" that have made utilities more cost-effective.

Prices can be kept reasonable

With a continuing commitment to R&D, Starr said U.S. electricity prices can be kept at a reasonable level when the plants built before 1970 are replaced.

If all of EPRI's current R&D programs meet their objectives, Starr predicted that the real cost of delivering electricity from new plants might approach half of the present cost.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22nd Annual Top 100 Electric Utilities Report

1986 results mask lingering utility difficulties

Robert A. Lincicome
Editor-in-Chief

The nation's Top 100 Electric Utilities bounced back a bit in 1986 from the poor performance recorded a year earlier. While revenues declined slightly on essentially flat kilowatthour sales performances, total net income and earnings for common stock improved over 1985.

Significantly, the Top 100 Electric Utilities continued the trend to improved quality of earnings begun two years ago.

And while many utilities enjoyed large percentage improvement in 1986, it must be remembered that in general the reason they look so good is because they looked so bad the year earlier, that they were rebounding. Nevertheless, there were some important, solid performances that should be recognized. Consumers Power, for example, has gone a long way on its recovery road from its Midland nuclear plant cancellation problems. And General Public Utilities appears to have its TMI-2 crisis-days behind it and is now back on a strong financial course.

In general, however, although the industry's 1986 performance improved on 1985 results, performance overall was below that enjoyed in 1984.

These were the broad conclusions revealed in *EL&P's* 22nd Annual Top 100 Electric Utilities survey, completed in April.

Slow recovery from 1985

While overall performances were mixed and at best were lackluster, they did represent some improvement from 1985's dismal performance, the worst in the 21 year history of the Top 100 Electric Utilities report to that time.

In summary, the Top 100 electric utilities, or their holding companies, reported total revenues from all sources of $149.3 billion, a decrease of 0.53 percent from the $150.1 billion garnered by the Top 100 in 1985. These revenues came on the strength of a 1.96 percent increase in customers, to an all-time high of 77.9 million. Kilowatthour sales growth lagged customer growth, principally reflecting lower industrial electrical usage. KWh sales gained 1.14 percent, to 2.0-trillion kWh from 1.98-trillion a year earlier.

Utility net incomes increased to $17.3-billion, a gain of 11.77 percent from the $15.5-billion posted in 1985. But the 1986 result was still 5 percent below net income performance in 1984. And earnings per share of common stock in 1986 totalled $2.80, a 16-cent per share increase from 1985, but still 47 cents per share, or 14 percent, below the 1984 level.

KWh sales inch ahead

Kilowatthour sales by the Top 100 Electric Utilities climbed slightly in 1986, to 2.0-trillion kWh. This represents a gain of 1.14 percent. KWh sales in 1985 were just under 1.98-trillion kWh.

Since customer growth was reported to be 1.96 percent, it is clear that kWh sales simply did not keep pace. Although both residential and commercial sales actually increased, the continued lull in manufacturing and industrial activity held total sales figures down.

Last year 62 companies reported increases in kWh sales, but only 10 said their gains exceeded the historic 7-percent per year average rate enjoyed by the industry up until the Arab oil embargo. While the largest gain, by Montana Power, was a healthy 25.98 percent, the median growth was just 1.94 percent, down from the meager 2.1 percent recorded in 1985 and well below the 4.88 percent median kWh sales growth posted in the banner year of 1984.

The ten largest sellers of kWh remained the same as in 1985, although there were minor changes in position (see Table I). Two companies—Commonwealth Edison and Duke Power—each moved up two positions, Commonwealth Edison, which increased sales 2.02 percent, climbed from sixth to fourth, and Duke, which enjoyed a 7.95 percent increase in sales in 1986, rose from eighth to sixth. Pacific Gas & Electric, suffering a 2.27 percent decrease in sales, dropped two positions to seventh. Other changes reflected movements up or down only one rank.

Average residential electrical use also increased slightly in 1986, well below the rate of customer growth and below the growth rate posted in 1986. Average residential use was 8634 kWh in 1986, up 1.12 percent from 8538 in 1985. Use of electricity by residential customers in 1986 remained 2.0 percent below the all-time peak of 8823 kwh in 1984 and 1 percent below the previous record of 8705 kWh established in 1978.

As in the past, the companies posting the highest average residential kWh use tended to be in the low-cost-of-power Northwest, and in the humid Southeast. Leaders were: 1. Idaho Power, 14,541 kWh; 2. Washington Water Power, 13,764 kWh; 3. Puget Sound Power & Light, 13,396 kWh; 4. Nevada Power, 12,933 kWh; and 5. Scana Corp. (South Carolina Electric & Gas); 12,821 kWh.

Conversely, companies ranking lowest in average residential kWh use tended to be in high-cost areas of the country. Companies recording the lowest electrical usage were: 100. Consolidated Edison, 3,511 kWh; 99. San Diego Gas & Electric, 5,256 kWh; 98. Public Service Enterprise Group (Public Service Electric & Gas), 5650 kWh; 97. El Paso Electric, 5,719; and 96. Boston Edison, 5735 kWh.

Total revenues for the Top 100 Electric Utilities fell 0.53 percent in

Continued on page 14

EARNINGS TABLE

Company	Rank	% Change From 1985	1986 Earnings Per Share, $	1985 Earnings Per Share, $
Central Maine Power	1	1825.00	1.54	0.08
DPL, Inc.	2	208.08	3.05	0.99
General Public Utilities	3	75.27	3.26	1.86
Ipalco	4	71.20	3.27	1.91
IE Industries	5	44.90	2.13	1.47
Savannah Electric & Power	6	31.72	1.91	1.45
Central Illinois Light	7	31.54	3.67	2.79
American Electric Power	8	19.63	2.62	2.19
Oklahoma Gas & Electric	9	19.57	2.75	2.30
Minnesota Power	10	18.38	2.77	2.34
Atlantic Energy	11	16.67	3.50	3.00
Pennsylvania Power & Light	12	15.67	3.10	2.68
Potomac Electric Power	13	14.76	4.12	3.59
Illinois Power	14	14.37	3.98	3.48
Midwest Energy	15	13.38	1.61	1.42
Baltimore Gas & Electric	16	12.50	3.15	2.80
Allegheny Power System	17	12.26	4.03	3.59
New York State Electric & Gas	18	11.56	3.86	3.46
Detroit Edison	19	10.73	2.58	2.33
Dominion Resources	20	10.51	4.10	3.71
Middle South Utilities	21	9.95	2.21	2.01
Duke Power	22	8.60	4.04	3.72
Sierra Pacific Power	23	7.45	3.03	2.82
Hawaiian Electric Industries	24	7.08	2.57	2.40
Tucson Electric Power	25	6.90	4.65	4.35
Southern Indiana Gas & Electric	26	6.00	3.18	3.00
Eastern Utilities Associates	27	5.62	2.82	2.67
Central Vermont Public Service	28	5.60	3.58	3.39
Nevada Power	29	5.56	1.71	1.62
Delmarva Power & Light	30	5.43	2.91	2.76
Commonwealth Edison	31	5.39	4.69	4.45
San Diego Gas & Electric	32	5.23	3.42	3.25
Kansas Power & Light	33	5.21	4.85	4.61
Florida Progress	34	5.10	3.71	3.53
Northern States Power	35	4.04	3.09	2.97
Empire District Electric	36	4.00	2.86	2.75
Central & South West	37	3.88	3.75	3.61
Orange & Rockland Utilities	38	3.56	2.91	2.81
Louisville Gas & Electric	39	3.49	3.26	3.15
Iowa Southern Utilities	40	3.02	2.73	2.65
Boston Edison	41	2.79	2.58	2.51
Carolina Power & Light	42	2.59	3.96	3.86
United Illuminating	43	2.58	5.97	5.82
Cincinnati Gas & Electric	44	2.42	3.36	3.30
Texas Utilities	45	2.30	4.45	4.35
Northeast Utilities	46	2.21	2.78	2.72
Central Illinois Public Service	47	2.08	1.96	1.92
Pacificorp	48	1.77	3.45	3.39
New England Electric	49	1.56	3.20	3.15
Philadelphia Electric	50	1.56	2.60	2.56
Southwestern Public Service	51	1.10	2.75	2.72
Union Electric	52	1.05	2.89	2.86
Ohio Edison	53	0.82	2.47	2.45
Southern California Edison	54	0.61	3.28	3.26
Otter Tail Power	55	0.56	3.57	3.55
Wisconsin Power & Light	56	0.47	4.28	4.26
Kentucky Utilities	57	0.35	2.85	2.84
Consolidated Edison	58	0.00	4.26	4.26
Wisconsin Energy	59	-0.21	4.74	4.75
Public Service of New Mexico	60	-0.30	3.29	3.30
Southern Company	61	-0.94	3.17	3.20
Pacific Gas & Electric	62	-1.89	2.60	2.65
Teco Energy	63	-3.63	3.45	3.58
Central Hudson Gas & Electric	64	-3.85	4.49	4.67
Iowa Resources	65	-3.90	1.97	2.05
Iowa-Illinois Gas & Electric	66	-3.93	3.91	4.07
Central Louisiana Electric	67	-4.11	3.50	3.65
Interstate Power	68	-4.65	2.05	2.15
Madison Gas & Electric	69	-5.59	2.87	3.04
Niagara Mohawk Power	70	-5.90	2.71	2.88
Utilicorp United	71	-6.04	2.80	2.98
FPL Group	72	-6.75	2.90	3.11
Rochester Gas & Electric	73	-6.98	3.33	3.58
Idaho Power	74	-7.41	2.00	2.16
Centerior Energy	75	-7.80	3.04	3.29
Houston Industries	76	-7.75	3.81	4.13
Scana Corp.	77	-8.21	1.79	1.95
Commonwealth Energy System	78	-8.44	4.12	4.50
Wisconsin Public Service	79	-8.76	4.06	4.45
TNP Enterprises	80	-10.70	1.92	2.15
MDU Resources Group	81	-10.80	1.90	2.13
Public Service Enterprise Group	82	-13.15	2.84	3.27
Gulf States Utilities	83	-18.57	1.71	2.10
El Paso Electric	84	-19.44	2.32	2.88
Puget Sound Power & Light	85	-19.82	1.74	2.17
Duquesne Light	86	-20.80	1.79	2.26
AZP Group	87	-21.65	3.04	3.88
Montana Power	88	-30.21	3.65	5.23
Kansas Gas & Electric	89	-32.39	1.44	2.13
Kansas City Power & Light	90	-36.51	2.80	4.41
Utah Power & Light	91	-39.84	1.48	2.46
Long Island Lighting	92	-42.57	2.28	3.97
Washington Water Power	93	-81.52	0.56	3.03
Portland General Electric	94	-88.55	0.34	2.97
Public Service of Colorado	95	-92.82	0.13	1.81
Public Service of Indiana	96	NA	-0.94	-23.17
Consumers Power	97	NA	0.74	-4.42
Northern Indiana Public Service	98	NA	-0.57	-0.23
Public Service of New Hampshire	99	NA	-6.44	2.50
Centsi	100	NA	NA	NA

Company	1986 Total Sales (KWH) Rank	% Increase	Average Annual Growth 1981 — 1985	1986 Sales (KWH) By Type of Customer (% of Sales) Resid.	Comm.	Indus.	Other	Average Annual Residential Use 1986	1985	Ratio of Long-Term Debt to Net Plant 1986	1985
Montana Power	1	25.88	-0.40	18.19	26.11	16.26	39.44	8,566	9,257	45.46	46.01
Wisconsin Public Service	2	13.71	1.91	31.90	22.15	28.73	17.22	7,340	7,266	35.65	36.11
Dominion Resources	3	11.69	2.24	35.64	26.92	16.64	20.80	NA	NA	47.24	41.71
Florida Progress	4	8.92	1.87	42.38	24.05	13.48	20.09	11,255	10,940	37.16	37.64
Pennsylvania Power & Light	5	8.20	4.50	28.63	23.53	26.25	21.39	9,344	9,034	42.77	40.76
Iowa Resources	6	8.05	2.20	34.94	24.81	31.06	9.19	8,463	8,295	44.54	45.90
Duke Power	7	7.95	0.94	25.84	20.35	38.36	15.46	12,413	11,859	41.46	42.68
Delmarva Power & Light	8	7.92	3.07	27.11	25.75	29.91	17.22	8,605	8,059	51.07	49.65
Southern Indiana Gas & Electric	9	7.83	-0.56	24.44	19.60	37.48	18.39	11,341	10,696	27.71	37.18
Baltimore Gas & Electric	10	7.80	2.40	26.72	15.77	47.50	0.00	9,255	8,813	41.26	41.63
Savannah Electric & Power	11	6.95	-0.63	43.01	30.44	22.66	3.89	11,514	10,536	42.09	40.53
New England Electric	12	6.74	2.12	34.69	31.77	24.18	9.36	6,500	6,302	51.99	53.72
DPL, Inc.	13	6.69	1.16	33.34	20.68	29.66	16.32	9,994	9,599	63.37	55.71
Kentucky Utilities	14	6.33	0.59	31.33	21.02	18.19	29.46	11,120	10,591	33.86	34.52
Utilicorp United	15	6.09	2.54	39.76	25.91	19.97	14.37	8,861	8,369	45.26	42.17
Hawaiian Electric Industries	16	5.88	0.57	27.52	25.06	46.62	0.81	6,753	6,753	35.51	39.91
Illinois Power	17	5.60	0.30	27.55	18.52	46.19	5.74	8,694	8,187	41.94	42.47
FPL Group	18	5.52	2.24	50.09	38.83	7.37	3.70	11,235	10,977	38.65	40.57
Carolina Power & Light	19	5.52	1.49	26.12	18.42	31.98	23.48	12,170	11,522	38.09	41.77
Central Louisiana Electric	20	5.37	0.72	39.58	18.85	34.55	7.22	11,984	11,519	42.17	37.74
Potomac Electric Power	21	5.34	3.51	25.50	42.14	22.84	9.53	10,022	9,338	40.47	44.74
Atlantic Energy	22	5.19	1.85	43.54	36.82	16.75	0.89	7,982	7,843	43.46	40.66
Scana Corp.	23	5.09	2.17	32.59	25.16	32.24	9.01	12,621	11,992	33.33	35.45
Ipalco	24	5.07	2.38	31.68	23.35	43.83	0.83	10,347	9,869	40.05	41.26
Louisville Gas & Electric	25	5.02	0.96	32.14	26.74	29.74	11.39	9,898	9,342	39.84	39.82
El Paso Electric	26	4.98	3.13	24.81	28.21	14.67	32.31	5,719	5,735	59.94	49.63
Kansas City Power & Light	27	4.84	1.36	30.45	43.27	24.30	1.97	8,563	8,197	45.30	46.74
Long Island Lighting	28	4.44	0.94	42.71	2.11	50.58	4.60	7,260	7,018	48.85	37.16
Iowa Southern Utilities	29	4.33	4.54	32.05	24.34	35.82	7.80	8,007	7,774	37.47	39.28
General Public Utilities	30	4.27	0.83	33.88	27.77	34.10	4.26	7,662	7,443	38.40	43.17
Cincinnati Gas & Electric	31	4.13	1.35	35.18	25.45	29.88	9.50	10,321	9,797	49.16	50.26
Northeast Utilities	32	3.99	1.03	36.80	34.14	23.99	5.06	7,746	7,492	47.09	45.51
Eastern Utilities Associates	33	3.72	0.79	33.56	33.06	22.74	10.64	5,792	5,582	51.98	47.65
Detroit Edison	34	3.67	1.57	27.58	19.72	45.32	7.38	6,350	6,165	40.47	43.78
Central Maine Power	35	3.58	4.17	34.45	22.49	41.35	1.72	7,145	7,013	53.80	52.41
IE Industries	36	3.57	1.14	32.90	25.75	33.16	8.20	8,143	7,891	35.77	41.97
Union Electric	37	3.52	2.46	32.85	32.93	26.57	5.64	10,227	9,901	43.59	43.94
Central Vermont Public Service	38	3.26	4.26	33.36	9.30	30.21	27.13	8,035	8,233	56.73	46.46
Cilcorp	39	3.08	-1.83	31.59	23.91	42.90	1.61	8,593	8,256	37.89	39.86
Public Service Enterprise Group	40	3.03	1.56	26.21	42.40	30.05	1.34	5,650	5,494	37.67	37.95
Philadelphia Electric	41	3.01	0.80	30.71	13.88	51.99	3.43	7,097	6,820	45.20	47.43
Nevada Power	42	2.90	2.43	41.19	2.87	48.76	7.18	12,933	13,805	48.51	47.46
Interstate Power	43	2.85	-1.32	22.99	18.77	51.81	6.43	7,127	7,132	44.37	48.71
Middle South Utilities	44	2.74	1.22	29.61	19.96	33.66	16.76	11,769	11,626	54.03	47.09
Texas Utilities	45	2.57	5.14	32.69	28.51	27.92	10.87	12,749	13,082	39.79	36.85
Public Service of Colorado	46	2.24	2.67	28.38	47.81	18.41	5.40	5,936	6,230	34.64	37.52
Consolidated Edison	47	2.03	1.75	26.94	66.76	4.76	1.54	3,511	3,386	36.51	36.48
Commonwealth Edison	48	2.02	0.85	27.86	29.97	30.96	11.19	6,525	6,458	36.08	37.11
Kansas Gas & Electric	49	1.99	-0.11	26.85	21.89	35.26	16.01	9,202	9,435	53.26	54.48
United Illuminating	50	1.94	1.19	34.61	38.98	25.06	1.33	6,356	6,265	48.54	53.01
Centerior Energy	51	1.85	0.17	25.77	24.63	45.05	4.55	7,348	7,169	94.86	96.76
Consumers Power	52	1.76	-0.17	31.31	26.26	41.60	0.82	6,852	6,733	86.45	93.82
Puget Sound Power & Light	53	1.54	0.73	47.02	28.11	17.26	7.61	13,396	14,252	58.60	53.94
Madison Gas & Electric	54	1.45	0.32	28.18	53.62	5.32	12.88	6,222	6,192	48.66	43.57
Commonwealth Energy System	55	1.21	2.34	25.56	26.51	7.59	40.34	5,915	5,946	38.73	35.30
Wisconsin Energy	56	1.11	1.07	30.05	26.11	33.82	10.02	7,461	7,367	50.38	36.41
Public Serice of Indiana	57	1.11	-0.62	28.55	23.03	33.96	14.46	10,777	10,347	62.72	76.32
American Electric Power	58	1.07	-2.21	22.87	15.82	33.66	27.65	10,099	10,014	51.12	53.86
Iowa-Illinois Gas & Electric	59	1.00	0.10	23.40	26.70	43.00	6.90	6,454	6,040	35.09	37.95
San Diego Gas & Electric	60	0.57	2.41	36.89	35.67	23.78	3.67	5,256	5,413	36.70	38.35
Sierra Pacific Power	61	0.32	1.20	31.82	39.46	25.11	3.62	7,186	7,477	41.76	40.77
Northern States Power	62	0.19	2.94	27.54	15.14	44.96	12.53	7,540	7,470	35.33	37.47
Kansas Power & Light	63	-0.26	0.14	22.67	27.55	19.90	29.88	8,109	7,984	32.31	33.87
Portland General	64	-0.38	3.06	31.69	25.58	17.45	25.28	11,987	12,781	57.88	46.56
Midwest Energy	65	-0.42	-1.09	35.76	27.41	25.00	11.83	7,089	7,267	43.87	45.65
Public Service of New Hampshire	66	-0.60	3.26	30.38	13.43	29.88	26.33	7,119	6,969	55.83	45.57
AZP Group	67	-0.77	1.40	33.88	36.99	19.01	10.12	10,176	10,499	39.32	45.26
Southwestern Public Service	68	-0.87	6.92	13.39	14.82	36.53	35.27	7,672	7,574	39.52	39.51
Wisconsin Power & Light	69	-0.88	4.69	26.26	15.43	28.56	29.74	8,105	8,152	41.21	42.07
Central Hudson Gas & Electric	70	-0.94	-1.89	26.46	23.92	32.92	16.69	6,491	6,254	114.53	119.77
Southern California Edison	71	-1.21	0.81	29.23	33.11	31.11	6.54	5,999	6,099	44.10	46.21
Centel	72	-1.30	-0.59	27.57	29.11	21.89	21.44	6,492	6,686	0.00	0.00
Orange & Rockland Utilities	73	-1.47	3.34	32.20	22.04	29.87	15.89	6,385	6,182	41.71	41.14
Southern Company	74	-2.10	6.76	23.08	18.96	32.40	25.55	11,145	10,514	45.29	46.68
TNP Enterprises	75	-2.12	5.03	26.95	19.67	51.27	2.11	10,465	10,430	36.06	39.47
Pacific Gas & Electric	76	-2.27	-0.68	35.99	36.57	27.44	0.00	6,343	6,533	49.95	60.31
Ohio Edison	77	-2.49	3.43	25.02	19.74	30.29	24.95	7,924	7,682	38.55	40.73
Duquesne Light	78	-2.61	-0.95	23.37	37.34	21.61	17.67	5,821	5,621	46.26	45.35
Niagara Mohawk Power	79	-2.69	1.46	27.25	30.20	31.45	11.10	7,249	7,046	43.30	45.06
MDU Resources Group	80	-2.83	2.66	39.59	24.66	31.93	3.81	7,517	7,788	43.45	38.64
Houston Industries	81	-3.50	-0.32	27.08	21.18	48.50	3.24	12,675	12,961	35.48	37.98
Central & South West	82	-3.91	-0.09	29.14	24.59	32.76	13.51	10,328	10,398	34.95	36.04
Empire District Electric	83	-4.25	5.34	30.71	21.54	19.60	28.15	9,759	9,463	36.12	32.98
Teco Energy	84	-4.45	1.83	39.96	29.36	23.32	7.33	12,590	12,571	35.86	35.76
Boston Edison	85	-5.60	2.18	22.57	46.95	13.60	16.88	5,735	5,512	43.09	49.14
Rochester Gas & Electric	86	-5.74	1.27	28.21	24.73	26.50	20.56	6,759	6,711	44.72	47.13
Oklahoma Gas & Electric	87	-5.86	-1.69	32.00	22.46	28.30	17.25	10,591	11,097	38.04	38.60
Washington Water Power	88	-6.26	-0.74	33.55	21.72	13.72	31.01	13,674	14,977	52.15	45.53
Minnesota Power	89	-6.42	-1.50	10.89	9.84	62.11	17.16	8,264	8,123	52.17	51.84
New York State Electric & Gas	90	-6.54	0.05	31.20	18.06	18.89	31.86	7,539	7,367	53.51	51.92
Northern Indiana Public Service	91	-6.92	-0.84	19.49	4.33	73.37	2.81	6,708	6,531	49.02	48.39
Gulf States Utilities	92	-7.16	-0.79	24.89	19.84	49.02	6.25	12,731	12,906	54.11	49.64
Utah Power & Light	93	-8.13	5.56	20.35	17.49	40.54	21.62	7,907	8,206	44.51	40.82
Idaho Power	94	-8.23	5.15	24.22	13.10	24.66	38.03	14,541	15,432	41.05	43.13
Pacificorp	95	-8.51	2.52	28.21	21.84	31.81	20.33	11,429	12,267	53.72	53.63
Central Illinois Public Service	96	-9.29	-0.25	30.87	13.13	44.06	11.95	7,591	7,280	40.23	39.66
Public Service of New Mexico	97	-9.54	5.82	20.13	27.18	12.52	40.17	5,822	5,925	47.37	52.65
Otter Tail Power	98	-11.12	3.91	31.07	16.46	37.10	15.37	9,966	10,190	31.31	36.84
Allegheny Power System	99	-13.16	1.27	23.90	13.85	35.77	26.49	9,285	8,998	42.96	43.96
Tucson Electric Power	100	-15.84	10.89	27.58	17.93	35.90	18.59	7,966	8,083	60.10	64.61

TABLE I
THE TOP 10 IN KWH SALES

Rank '86	Rank '85	Company	KWH Sales (millions)	'86 % Change
1	1	Southern Company	$123,412	-2.10
2	2	American Electric Power	101,584	1.07
3	3	Texas Utilities	75,255	2.57
4	6	Commonwealth Edison	65,117	2.02
5	4	Southern California Edison	64,197	-1.21
6	8	Duke Power	60,513	7.95
7	5	Pacific Gas & Electric	58,207	-2.27
8	7	Middle South Utilities	57,807	2.74
9	10	FPL Group	54,276	5.52
10	9	Houston Industries	54,008	-3.50

1986, to $1.49.3-billion. In 1985, revenues were $150.1-billion. Revenues included funds from all activities for each of the companies reporting, including those of both regulated and non-regulated subsidiaries of utility holding companies.

Several factors are reflected here. First, kWh sales increased only marginally. Second, there were a number of rate adjustments and redesigns during the year that acted to maintain rate stability or reduce rates. And finally, reduced fuel prices were reflected in reduced collections of fuel adjustment charges.

Fifty-nine companies reported decreased revenues during 1986. Twenty-five of these also reported decreases in their kWh sales. The balance saw revenues reduced because of rate action, reduced collections for fuel adjustments, and reduced revenues of "other" activities, including those of non-utility subsidiary operations.

The largest revenue gains were posted by Utilicorp United, the small, but rapidly expanding holding company formed by Missouri Public Service. Utilicorp United enjoyed revenues that grew by 145 percent in 1986, to $596-million, largely through acquisitions of gas utility properties. Ranking second, with a 52.7 improvement, was Midwest Energy, the holding company formed by Iowa Public Service Co., which enjoyed a large increase in gas revenues through acquisition and through subsidiary activities, despite lower electric revenues. The third-fastest revenue producer was Kansas Gas & Electric Co., which recorded most of its gain on the basis of electric rate adjustments.

At the other end of the scale, the utilities suffering the largest revenue declines were Gulf States Utilities, down 20.5 percent on fewer electric and gas customers and reduced electric and gas sales; TNP Enterprises, down 17.1 percent largely on reduced sales; and Washington Water Power, off 15.2 percent on the basis of lower electric sales to residential and "other" customers and substantially reduced gas sales.

There were only two changes among the rankings of the ten largest revenue producers (see Table II). Commonwealth Edison, which increased its revenues 10.4 percent to $5.5 billion, replaced Consolidated Edison as the third largest revenue producer, and Con Ed, which suffered a 5.5 percent decrease in revenues in 1986, dropped to fifth, where Commonwealth Edison had been in 1985. The other eight companies ranked the same in 1986 as in 1985.

Net incomes available for common stock posted by the Top 100 Electric Utilities increased 11.8 percent in

Rank '86	Rank '85	Company	'86 Revenues (millions)	'86 % Change
1	1	Pacific Gas & Electric	$7,817	-7.3
2	2	Southern Company	6,847	0.48
3	5	Commonwealth Edison	5,479	10.4
4	4	Southern California Edison	5,319	2.8
5	3	Consolidated Edison	5,198	-5.5
6	6	American Electric Power	4,843	-0.1
7	7	Public Service Enterprises	4,488	1.6
8	8	FPL Group	4,092	-5.9
9	9	Texas Utilities	3,932	-5.7
10	10	Houston Industries	3,536	-19.5

1986, to $17.3 billion. While this might seem to be a healthy enough gain, it must be remembered that 1985 was the worst year in the then-21 year history of the Top 100 report.

A year ago, we reported that net income for the Top 100 fell for the first time, dropping 14.8 percent from 1984. With the gain in 1986, total net income still is below that posted in 1984. Thus, 1986 was a year of only partial recovery for net incomes.

But while the general performance was less than spectacular, many utilities managed to improve the quality of their earnings, continuing the trend that began two years ago. For most of the Top 100 utilities, completion of major generation construction projects and the resultant reductions in Allowances for Funds Used During Construction have had a substantial effect on the quality of their earnings.

Overall, 64 utilities reported gains in net income production, compared with 65 a year ago. And the median reported net income increase was 4.7 percent, marginally below last year's median of 4.9 percent, but well below the median gain of 13.8 percent recorded in 1984.

Three utilities—Public Service of New Hampshire, Public Service Indiana and Northern Indiana Public Service—posted losses in 1986 resulting from their nuclear programs or former nuclear programs. But Consumers Power, saddled with huge writeoffs for its cancelled Midland nuclear plant last year, made a turnaround, going from a $390-million loss in 1985 to a $65-million net income in 1986 And Central Maine, which posted a $1.6-million income in 1985 turned around with a $35-million performance.

There were several changes in the rankings of the largest income producers (see Table III), the foremost of which was the movement of Commonwealth Edison into first position on the strength of an 11.1 percent gain, to $933-million. CECo replaced Pacific Gas & Electric, which slipped to second. There also was movement among the companies ranked seventh through tenth.

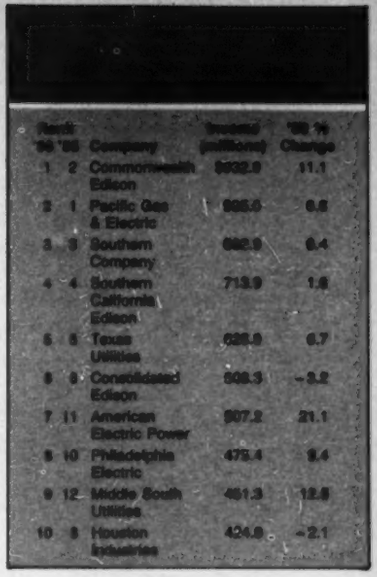
Earnings gain

Average earnings per share of common stock increased 16 cents per-share, or 6.1 percent from 1985. Average earnings in 1986 were $2.80, compared with $2.64 in 1985. But per-share earnings in 1985 had tumbled 19.3 percent from the 1984 high of $3.27, which means that even with the 1986 recovery, per-share earnings still were some 14.4 percent below the 1984 level.

The per-share figures were based

Company	Net Income Rank	Net Income % Gain	Revenue Rank	Revenue % Gain	Sales (KWH) Rank	Sales (KWH) % Gain	Int. Cov. Ratio 1986	Int. Cov. Ratio 1985	Earnings Per Share $ 1986	Price/Share 1986 (Dollars) High	Price/Share 1986 (Dollars) Low	% Change Long-Term Debt '85-'86
Central Maine Power	1	2,020.65	78	-6.19	36	3.58	0.71	0.03	1.54	20.000	13.375	-19.47
DPL, Inc.	2	215.96	59	-2.37	13	6.69	1.36	0.48	3.06	29.125	19.500	13.28
Public Service of Indiana	3	95.94	16	7.60	57	1.11	-0.33	-7.28	(0.94)	16.625	7.250	-19.02
General Public Utilities	4	75.27	62	-2.87	30	4.27	1.27	0.74	3.26	25.000	16.500	-4.86
Ipalco	5	73.08	14	8.75	24	5.07	1.37	1.33	3.27	29.500	18.500	-0.40
IE Industries	6	49.75	82	-7.05	36	3.57	1.24	0.78	2.13	27.750	23.375	-13.24
Savannah Electric & Power	7	33.86	11	10.62	11	6.95	1.12	0.83	1.91	23.125	10.750	7.00
Cilcorp	8	31.58	52	-1.62	39	3.08	1.91	1.56	3.67	42.500	26.500	-4.87
Illinois Power	9	23.76	33	1.41	17	5.60	1.29	1.19	3.98	32.000	23.125	13.25
Oklahoma Gas & Electric	10	23.19	37	0.56	87	-5.86	1.77	1.64	2.75	36.750	26.125	14.01
American Electric Power	11	21.14	42	-0.11	58	1.07	1.01	0.75	2.62	31.500	22.750	-5.86
Minnesota Power	12	21.02	65	-4.21	89	-6.42	2.09	1.71	2.77	31.750	29.500	0.53
Atlantic Energy	13	18.05	38	0.56	22	5.19	1.71	1.52	3.50	46.625	28.250	13.15
Pennsylvania Power & Light	14	15.92	10	10.75	5	6.20	0.75	0.65	3.10	43.375	27.615	6.57
Dominion Resources	15	15.30	7	12.13	3	11.89	1.24	1.22	4.10	NA	NA	21.90
Boston Edison	16	14.87	67	-4.84	85	-5.80	1.30	1.01	2.58	28.000	21.125	-8.30
Potomac Electric Power	17	14.86	24	4.17	21	5.34	2.03	1.87	4.12	59.250	33.750	-6.28
Allegheny Power System	18	14.20	61	-6.91	99	-13.16	1.54	1.35	4.03	53.875	31.625	-1.03
Utilicorp United	19	13.99	1	145.04	15	6.09	0.94	1.67	2.80	33.950	21.625	15.34
New York State Electric & Gas	20	13.75	25	2.86	90	-6.54	1.25	1.11	3.86	38.500	27.250	10.28
Midwest Energy	21	13.46	2	52.71	65	-0.42	1.06	1.06	1.61	28.000	15.625	0.79
Detroit Edison	22	13.18	35	1.10	34	3.87	0.85	0.80	2.58	19.375	15.375	-3.03
Ohio Edison	23	13.13	45	-0.73	77	-2.49	0.90	0.79	2.47	22.500	15.875	3.34
Baltimore Gas & Electric	24	12.85	21	4.52	10	7.80	2.06	1.86	3.18	39.875	23.000	2.39
Florida Progress	25	12.62	8	13.41	4	8.92	1.57	1.33	3.71	47.000	30.250	-0.03
Middle South Utilities	26	12.55	15	7.84	44	2.74	0.62	0.53	2.21	14.375	10.500	5.32
Carolina Power & Light	27	11.18	19	5.48	18	5.52	1.34	1.22	3.96	42.750	28.625	0.80
Commonwealth Edison	28	11.11	12	10.36	48	2.02	1.34	1.28	4.89	35.750	28.625	11.20
Central Hudson Gas & Electric	29	10.81	95	-13.12	70	-0.94	1.67	1.56	4.49	39.875	28.625	-1.13
Hawaiian Electric Industries	30	10.38	96	-13.92	16	5.88	1.29	1.29	2.57	35.500	24.500	-7.03
Nevada Power	31	9.54	18	6.31	42	2.90	1.35	1.35	1.71	25.250	15.125	6.43
Philadelphia Electric	32	9.35	23	4.25	41	3.01	1.29	2.22	2.60	25.125	16.875	-0.52
Eastern Utilities Associates	33	9.14	27	2.94	33	3.72	0.77	0.78	2.82	39.500	25.750	48.44
Tucson Electric Power	34	8.76	88	-4.90	100	-15.84	4.51	5.19	4.65	65.000	41.000	26.63
Central Vermont Public Service	35	8.74	6	11.90	38	3.26	21.89	30.02	3.58	29.250	21.000	-4.44
Duke Power	36	8.60	4	17.32	7	7.96	1.57	1.48	4.04	52.000	34.875	0.89
Public Service of New Mexico	37	8.50	34	1.16	97	-9.54	1.60	1.23	3.29	37.875	28.000	-21.15
Scana Corp.	38	7.58	46	-0.75	23	5.08	1.70	1.36	3.03	42.875	27.125	-5.04
Empire District Electric	39	7.57	22	4.33	83	-4.26	1.96	1.83	2.86	36.000	23.150	-3.28
Southern Indiana Gas & Electric	40	6.98	30	2.45	9	7.53	1.49	2.18	3.18	41.250	25.500	-24.40
Pacific Gas & Electric	41	6.75	84	-7.29	76	-2.27	1.28	1.29	2.80	27.500	18.750	1.53
Pacificorp	42	6.66	25	4.15	95	-8.51	0.66	0.66	3.45	38.000	30.125	0.51
Texas Utilities	43	6.65	72	-5.71	45	2.57	1.82	1.86	4.45	37.500	29.500	18.48
San Diego Gas & Electric	44	6.62	76	-6.01	60	0.57	1.70	1.58	3.42	42.500	28.750	-0.10
Southern Company	45	6.42	40	0.48	74	-2.10	1.12	1.07	3.17	27.250	20.375	7.18
Louisville Gas & Electric	46	6.33	56	-2.10	25	5.02	1.35	1.32	3.26	44.375	29.000	4.73
Kansas Power & Light	47	6.01	93	-11.46	53	-0.26	1.60	1.50	4.86	65.000	39.625	-2.75
Delmarva Power & Light	48	5.57	49	-1.10	8	7.92	1.60	1.74	2.91	38.125	25.375	4.53
New England Electric	49	4.83	47	-0.86	12	6.74	1.97	2.10	3.20	35.250	24.375	2.40
Northern States Power	50	4.69	43	-0.40	62	0.19	2.04	2.10	3.09	40.125	25.000	3.15
Central & South West	51	4.54	74	-5.74	82	-3.91	1.48	1.33	3.75	37.500	26.500	3.37
Cincinnati Gas & Electric	52	4.47	39	0.50	31	4.13	1.37	1.36	3.36	31.125	20.375	0.87
Northeast Utilities	53	4.28	58	-2.35	32	3.99	1.26	1.27	2.78	28.250	17.375	2.22
United Illuminating	54	4.18	87	-8.51	50	1.94	0.91	1.02	5.97	36.250	26.625	1.78
Orange & Rockland Utilities	55	3.47	88	-9.33	73	-1.47	1.49	1.94	2.91	40.000	26.250	16.29
Southwestern Public Service	56	3.33	61	-2.83	68	-0.87	1.91	2.23	2.75	37.875	22.000	-0.20
Union Electric	57	2.53	5	13.53	37	3.52	1.19	1.13	2.89	31.750	20.875	-0.76
Otter Tail Power	58	2.44	53	-1.84	96	-11.12	1.62	1.56	3.57	49.250	32.500	-13.83
Central Illinois Public Service	59	2.17	91	-10.60	96	-9.29	1.76	1.70	1.96	30.750	19.750	0.56
Southern California Edison	60	1.84	29	2.76	71	-1.21	1.57	1.56	3.26	36.750	25.250	0.18
Iowa Southern Utilities	61	0.76	48	-0.99	29	4.33	1.82	1.75	2.73	36.750	22.875	-5.44
Wisconsin Power & Light	62	0.54	63	-3.34	69	-0.98	1.84	2.71	4.26	60.250	39.000	0.09
Kentucky Utilities	63	0.40	31	2.36	14	6.33	1.46	1.40	2.85	48.125	30.000	-2.50
Iowa-Illinois Gas & Electric	64	0.29	66	-4.23	59	1.00	1.63	1.43	3.91	46.750	34.500	-8.78
Wisconsin Energy	65	(0.41)	55	-2.06	56	1.11	2.48	2.80	4.74	64.500	38.275	29.70
Teco Energy	66	(1.11)	20	4.73	84	-4.45	1.08	1.85	3.45	54.875	34.000	1.28
FPL Group	67	(1.84)	75	-5.92	18	5.52	1.22	1.18	2.90	38.000	26.375	-1.99
Central Louisiana Electric	68	(2.11)	73	-5.74	20	5.37	1.20	1.39	3.50	38.000	28.500	18.62
Houston Industries	69	(2.12)	94	-12.95	81	-3.50	1.76	1.89	3.81	37.000	27.250	1.63
Niagara Mohawk Power	70	(2.22)	80	-1.28	79	-2.69	1.23	1.32	2.71	25.500	15.500	6.83
Centerior Energy	71	(2.37)	28	3.83	51	1.85	0.97	1.09	3.04	27.750	22.125	10.23
Interstate Power	72	(2.69)	57	-2.16	43	2.86	0.95	1.09	2.05	31.625	21.125	-9.34
Iowa Resources	73	(3.14)	51	-1.41	6	8.05	1.46	1.11	1.97	27.500	17.375	-4.45
Consolidated Edison	74	(3.24)	70	-5.46	47	2.03	2.56	2.79	4.26	52.875	37.625	3.27
Sierra Pacific Power	75	(3.32)	44	-0.67	61	0.32	1.08	1.19	1.79	29.000	19.125	7.23
Rochester Gas & Electric	76	(3.64)	36	0.74	86	-5.74	1.81	1.86	3.33	29.875	21.250	0.99
Madison Gas & Electric	77	(4.20)	77	-6.04	54	1.45	1.78	1.90	2.87	41.500	27.125	20.40
Public Service Enterprise Group	78	(5.30)	32	1.58	40	3.03	1.19	1.38	2.84	48.250	30.750	4.63
Idaho Power	79	(6.21)	89	-9.38	94	-8.23	1.20	1.34	2.00	30.875	22.750	-4.90
Commonwealth Energy System	80	(6.40)	90	-9.81	55	1.21	1.96	2.47	4.12	45.750	29.250	22.70
TNP Enterprises	81	(7.70)	99	-17.11	75	-2.12	1.14	1.25	1.92	24.000	19.375	-0.96
Wisconsin Public Service	82	(9.15)	83	-7.24	2	13.71	2.24	2.68	4.06	63.000	38.375	-6.44
Gulf States Utilities	83	(11.45)	100	-20.45	92	-7.16	0.62	0.75	1.71	15.000	7.000	12.77
Duquesne Light	84	(15.40)	54	-2.04	78	-2.61	0.77	1.01	1.79	19.375	12.125	4.11
Puget Sound Power & Light	85	(15.81)	41	0.09	53	1.54	1.50	1.98	1.74	25.250	17.625	1.46
AZP Group	86	(16.23)	17	6.42	67	-0.77	1.25	1.84	3.04	32.000	26.000	-12.58
MDU Resources Group	87	(16.45)	92	-10.96	80	-2.83	0.82	0.82	1.90	27.875	19.375	14.55
El Paso Electric	88	(17.16)	80	-6.33	26	4.98	0.96	1.27	2.32	19.750	13.500	-1.03
Washington Water Power	89	(23.33)	98	-15.15	88	-6.26	2.11	1.48	0.58	31.625	24.250	0.00
Montana Power	90	(27.75)	13	8.96	1	25.98	1.13	1.58	3.66	43.375	31.375	-4.05
Kansas Gas & Electric	91	(29.80)	3	20.83	49	1.99	0.58	1.37	1.44	23.500	14.000	-4.65
Kansas City Power & Light	92	(35.10)	9	11.44	27	4.84	0.86	1.31	2.80	32.250	22.125	-4.49
Utah Power & Light	93	(37.67)	71	-5.51	93	-8.13	0.76	1.23	1.48	37.250	24.875	11.49
Long Island Lighting	94	(42.60)	64	-3.57	28	4.44	0.82	1.17	2.28	14.625	8.000	40.01
Portland General Electric	95	(98.26)	86	-8.08	64	-0.38	0.20	1.41	0.34	36.750	21.875	8.11
Public Service of Colorado	96	(92.92)	69	-5.13	46	2.24	0.06	1.14	0.13	22.375	16.000	-10.02
Consumers Power	97	NA	85	-7.95	52	1.76	0.16	-0.85	0.74	17.375	7.500	-9.04
Northern Indiana Public Service	98	NA	97	-14.80	91	-6.92	-0.29	-0.12	(0.57)	13.500	9.375	2.72
Public Service of New Hampshire	99	NA	60	-2.80	66	-0.60	-1.70	0.94	(8.44)	11.375	7.375	23.34
Centel	100	NA	79	-6.32	72	-1.30	NA	NA	NA	NA	NA	NA

Company	Electric Sales (KWH) (millions)	Rank	Customers Served: Electric Total	Electric % Gain	Gas Total	Gas % Gain	Revenues: Total $ (1000's)	Revenues: % Electric	Revenues: % Gas	Net Income After Tax $ (1000's)
Allegheny Power System	41,171	13	1,206,558	1.46	0	0.00	1,704,093	100.00	0.00	203,746
American Electric Power	101,584	2	2,616,952	1.16	75,578	2.52	4,842,801	98.91	1.77	507,171
Atlantic Energy	6,521	74	407,776	3.18	0	0.00	582,961	100.00	0.00	63,923
AZP Group	13,863	46	545,018	4.50	0	0.00	1,249,915	100.00	0.00	234,184
Baltimore Gas & Electric	21,236	31	942,314	2.80	518,279	0.36	1,834,020	75.69	24.31	247,743
Boston Edison	13,508	49	644,138	1.25	0	0.00	1,105,367	97.93	0.00	92,299
Carolina Power & Light	34,561	16	885,759	3.85	0	0.00	2,040,798	100.00	0.00	312,950
Centel	2,885	95	135,590	0.19	0	0.00	170,894	99.19	0.00	NA
Centerior Energy	25,326	26	998,542	0.64	0	0.00	1,917,730	99.55	0.00	391,893
Central & South West	45,777	12	1,518,300	0.21	0	0.00	2,555,102	97.38	2.62	355,193
Central Hudson Gas & Electric	4,954	80	236,803	2.70	53,055	4.85	436,551	85.99	14.01	59,270
Central Illinois Light	4,427	84	182,279	0.43	183,616	0.74	489,621	61.04	36.46	49,831
Central Illinois Public Service	7,508	67	305,272	−0.09	156,258	0.07	626,361	80.66	19.34	67,007
Central Louisiana Electric	5,129	78	196,455	0.42	0	0.00	297,133	100.00	0.00	39,010
Central Maine Power	8,138	65	443,637	2.90	0	0.00	508,809	100.00	0.00	35,012
Central Vermont Public Service	2,648	96	126,426	2.52	0	0.00	190,810	98.15	0.00	23,470
Cincinnati Gas & Electric	16,437	41	632,356	1.58	371,995	0.69	1,403,478	70.34	29.66	150,324
Commonwealth Edison	65,117	4	3,060,046	1.06	0	0.00	5,478,511	100.00	0.00	932,941
Commonwealth Energy System	5,997	77	320,000	1.91	211,000	1.44	612,940	61.00	37.22	38,093
Consolidated Edison	30,167	20	2,846,094	0.94	1,022,177	−0.11	5,197,736	81.31	13.38	508,330
Consumers Power	27,160	25	1,400,000	1.45	1,250,000	2.46	3,108,414	57.13	41 41	66,052
Delmarva Power & Light	9,206	59	329,911	3.59	77,551	2.88	714,883	84.25	12.84	88,718
Detroit Edison	38,040	14	1,817,493	1.42	0	0.00	2,869,284	98.73	0.00	378,292
Dominion Resources	49,660	11	1,615,700	4.12	133,378	4.36	3,071,600	94.06	3.60	379,800
DPL, Inc.	11,611	52	429,706	1.09	267,563	0.76	963,649	72.94	26.27	125,895
Duke Power	60,513	6	1,483,090	3.03	0	0.00	3,400,933	97.90	0.00	409,067
Duquesne Light	12,650	50	563,196	0.29	0	0.00	896,263	100.00	0.00	130,879
Eastern Utilities Associates	3,760	90	244,000	0.00	0	0.00	343,324	100.00	0.00	32,490
El Paso Electric	4,491	82	220,465	3.55	0	0.00	318,109	99.32	0.00	81,429
Empire District Electric	2,923	93	109,563	2.14	0	0.00	133,490	99.57	0.00	15,265
Florida Progress	23,170	29	1,009,441	4.28	0	0.00	1,874,700	81.64	0.00	181,200
FPL Group	54,276	9	2,791,475	4.22	0	0.00	4,091,504	100.00	0.00	365,411
General Public Utilities	34,770	15	1,742,276	2.61	0	0.00	2,787,077	99.92	0.00	205,247
Gulf States Utilities	24,805	28	555,075	−0.25	83,994	−1.23	1,478,368	92.50	2.24	181,854
Hawaiian Electric Industries	6,754	70	314,805	2.05	0	0.00	558,059	94.23	0.00	43,092
Houston Industries	54,008	10	1,303,205	−1.00	0	0.00	3,535,966	83.70	2.96	424,935
Idaho Power	13,668	48	274,144	0.73	0	0.00	408,861	100.00	0.00	67,880
IE Industries	4,344	85	206,007	0.02	126,951	−4.54	429,245	66.50	29.16	28,536
Illinois Power	15,235	44	540,595	0.66	383,201	0.20	1,183,865	68.77	31.23	256,479
Interstate Power	3,889	89	155,754	0.00	45,235	0.04	294,112	71.99	28.01	16,770
Iowa-Illinois Gas & Electric	4,124	86	170,527	7.32	206,771	0.00	538,382	52.47	47.53	52,385
Iowa Resources	5,001	79	239,839	1.24	0	0.00	336,490	98.50	0.00	43,781
Iowa Southern Utilities	1,811	99	93,499	0.25	37,719	0.03	138,742	73.34	26.66	15,719
Ipalco	10,321	56	357,236	2.22	0	0.00	512,446	94.80	0.00	122,723
Kansas City Power & Light	9,324	58	385,006	3.08	0	0.00	664,870	98.42	0.00	86,495
Kansas Gas & Electric	7,577	66	247,726	0.69	0	0.00	496,340	98.61	0.00	58,698
Kansas Power & Light	9,152	60	294,181	0.98	1,032,591	1.39	1,198,884	40.28	59.72	83,749
Kentucky Utilities	11,609	53	390,700	1.59	0	0.00	550,859	100.00	0.00	53,907
Long Island Lighting	14,637	45	963,191	1.52	410,064	1.17	1,977,121	80.79	18.48	252,864
Louisville Gas & Electric	8,437	64	309,670	1.21	236,211	0.82	885,226	70.83	28.53	63,801
Madison Gas & Electric	2,022	98	106,250	1.73	76,559	3.84	210,347	59.35	40.25	18,696
MDU Resources Group	1,807	100	111,373	−1.52	176,121	−0.55	305,412	38.08	61.92	14,216
Middle South Utilities	57,807	8	1,670,430	0.62	227,612	−0.93	3,485,912	95.79	4.21	451,302
Midwest Energy	2,942	92	155,048	−0.84	330,620	176.23	592,591	37.15	54.95	34,780
Minnesota Power	7,437	68	116,003	0.33	8,769	0.56	395,469	90.92	2.42	75,993
Montana Power	9,826	57	244,749	0.56	104,789	1.00	655,419	53.15	15.06	82,474
Nevada Power	6,709	72	250,256	6.40	0	0.00	383,405	100.00	0.00	43,712
New England Electric	19,574	33	1,175,307	2.43	0	0.00	1,431,943	94.07	0.00	171,996
New York State Electric & Gas	15,352	43	716,601	1.79	133,542	1.24	1,277,284	85.97	14.03	208,390
Niagara Mohawk Power	34,347	17	1,443,000	2.05	445,000	1.14	2,660,319	80.13	19.87	344,048
Northeast Utilities	22,482	30	1,177,510	2.46	165,443	2.35	2,032,117	87.74	10.03	300,894
Northern Indiana Public Service	11,136	55	364,692	0.53	554,383	1.85	1,626,127	54.43	45.57	(41,385)
Northern States Power	29,627	21	1,231,760	1.44	315,190	2.34	1,781,630	80.14	19.30	193,343
Ohio Edison	28,166	24	994,588	0.76	0	0.00	1,741,900	98.55	0.00	359,825
Oklahoma Gas & Electric	18,400	36	639,333	−0.96	0	0.00	1,090,872	100.00	0.00	119,051
Orange & Rockland Utilities	3,981	88	229,545	2.53	97,774	2.49	474,664	72.88	26.38	36,703
Otter Tail Power	3,018	91	121,232	−0.52	0	0.00	172,221	100.00	0.00	21,326
Pacific Gas & Electric	58,207	7	3,854,787	2.51	3,158,426	2.45	7,816,661	71.23	28.77	925,033
Pacificorp	24,809	27	662,928	0.37	0	0.00	2,066,900	51.87	0.00	230,700
Pennsylvania Power & Light	30,425	19	1,073,146	1.67	0	0.00	2,188,925	100.00	0.00	231,051
Philadelphia Electric	28,963	22	1,396,693	1.51	316,484	2.17	3,141,936	85.91	12.46	475,359
Portland General Electric	17,582	39	535,011	2.07	0	0.00	759,843	100.00	0.00	15,830
Potomac Electric Power	20,762	32	593,091	2.19	0	0.00	1,370,542	98.93	0.00	194,220
Public Service Enterprise Group	33,299	18	1,778,227	1.18	1,385,299	1.50	4,498,416	70.16	29.45	378,463
Public Service of Colorado	17,928	37	958,037	1.77	819,742	3.17	1,657,863	63.07	35.99	6,666
Public Service of Indiana	18,403	35	559,628	0.98	0	0.00	1,049,094	98.29	0.00	(50,618)
Public Service of New Hampshire	7,028	69	342,414	6.12	0	0.00	505,190	96.92	0.00	(239,346)
Public Service of New Mexico	6,728	71	267,128	4.68	322,335	2.33	697,995	63.48	35.05	132,818
Puget Sound Power & Light	16,218	42	646,253	3.45	0	0.00	714,763	100.00	0.00	110,248
Rochester Gas & Electric	6,702	73	312,129	1.49	245,446	1.81	748,649	65.05	34.95	104,519
San Diego Gas & Electric	11,725	51	940,752	5.25	594,874	4.22	1,634,211	81.69	18.31	190,771
Savannah Electric & Power	2,376	97	102,154	2.31	0	0.00	175,585	99.45	0.00	20,452
Scana Corp.	4,014	87	209,300	3.27	64,459	5.81	373,154	81.43	11.65	35,518
Sierra Pacific Resources	13,704	47	406,511	3.23	192,941	1.02	1,102,036	73.45	26.26	122,164
Southern California Edison	64,197	5	3,589,414	2.84	1,209	−0.17	5,313,336	99.97	0.01	713,933
Southern Company	123,412	1	2,955,844	2.61	0	0.00	6,846,591	99.15	0.00	882,860
Southern Indiana Gas & Electric	4,459	83	110,543	1.83	66,697	1.85	268,645	80.17	19.83	30,065
Southwestern Public Service	16,463	40	348,549	−0.25	0	0.00	808,257	99.58	0.00	112,307
Teco Energy	11,295	54	418,082	4.18	0	0.00	901,909	94.48	0.00	97,600
Texas Utilities	75,255	3	2,074,766	2.96	0	0.00	3,932,045	100.00	0.00	626,851
TNP Enterprises	6,475	75	196,079	1.12	0	0.00	356,293	100.00	0.00	14,223
Tucson Electric Power	6,212	76	245,175	4.52	0	0.00	425,355	100.00	0.00	112,304
Union Electric	28,257	23	1,035,697	1.67	107,203	0.14	1,807,182	95.32	4.48	294,648
United Illuminating	4,913	81	296,484	1.41	0	0.00	471,119	99.47	0.00	82,581
Utah Power & Light	17,882	38	516,362	1.89	0	0.00	984,885	99.87	0.00	84,200
Utilicorp United	2,867	94	149,462	3.31	384,099	6.81	595,805	32.32	67.68	25,892
Washington Water Power	8,677	62	240,000	0.84	83,000	3.75	389,867	77.61	21.96	62,414
Wisconsin Electric Power	18,963	34	847,761	1.06	235,719	2.59	1,411,143	79.46	19.70	157,742
Wisconsin Energy	8,715	61	323,085	1.15	112,042	2.39	589,248	76.77	22.52	58,670
Wisconsin Public Service	9,466	63	307,569	1.82	162,913	2.06	592,270	69.31	30.69	47,149



Rank '86	Rank '85	Company	Income (millions)	'86 % Change
1	2	Commonwealth Edison	932.9	11.1
2	1	Pacific Gas & Electric	925.0	6.6
3	3	Southern Company	882.9	6.4
4	4	Southern California Edison	713.9	1.6
5	5	Texas Utilities	626.9	6.7
6	6	Consolidated Edison	508.3	−3.2
7	11	American Electric Power	507.2	21.1
8	10	Philadelphia Electric	475.4	9.4
9	12	Middle South Utilities	451.3	12.8
10	8	Houston Industries	424.9	−2.1

Top 100 Electric Utilities

Name changes

(Holding company name is in **boldface**)

Atlantic Energy Inc.	Atlantic Electric
Centerior Energy	Cleveland Electric and Toledo Edison
Dominion Resources	Virginia Power
DPL, Inc.	Dayton Power & Light
Florida Progress	Florida Power
FPL Group	Florida Power & Light
Hawaiian Electric Industries	Hawaiian Electric
Houston Industries	Houston L & P
IE Industries	Iowa Electric L&P
Iowa Resources	Iowa P&L
IPALCo	Indianapolis P&L
MDU Resources	Montana-Dakota Utils
Pacificorp	Pacific P&L
Pinnacle West Capital	AZP Group
Public Service Enterprise Gp	Public Service Electric & Gas
SCANA Corp	South Carolina E&G
TECo	Tampa Electric
TNP Enterprises	Tex-NM Power
Utilicorp United	Missouri P.S.
Wisconsin Energy	Wisconsin Electric

on data provided by 99 utilities. Centel did not provide financial data.

The improvement in EPS performance reflects both the higher level of net income produced and the larger number of shares over which the income had to be spread.

For 1986, 58 utilities reported improvements from 1985 and 41 reported reductions in earnings. One utility, Consolidated Edison, reported the same earnings as in 1985. A year ago, 51 utilities reported gains, 46 said their per-share earnings fell and two reported the same earnings. For 1984, 72 companies reported EPS gains and in 1983 the number of gainers was 82. Thus, the number of companies posting gains has steadily decreased since 1983.

Median growth was up in 1986, to 1.56 percent, certainly better than 1985's 0.45 percent but well-below the 6.41 percent recorded in 1984, 9.63 percent in 1983 and 10.32 percent in 1982.

Recovering

As is usual in ratings based on degree of change, the majority of top performers this year were recovering from a poor year in 1985. In fact, the only utility to remain among the top performers in 1986 from 1985 was Minnesota Power, *EL&P's* Electric Utility of the Year for 1986, ranking 10th in 1986 after being 9th in 1985.